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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,378	12/10/2001	L. W. Wu		8271
7590	03/10/2004		EXAMINER	
Wen-Chiang Huang 2076, S. Evergreen Dr. Auburn, AL 36830			MAYEKAR, KISHOR	
			ART UNIT	PAPER NUMBER
			1753	

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/006,378	WU ET AL.
	Examiner Kishor Mayekar	Art Unit 1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1-15 is/are rejected.
 7) Claim(s) ____ is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892). | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: ____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/10/01</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: ____ . |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, as originally filed, does not provide support for the invention as claimed in the dependent claims 9 and 10.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, the phrase "a second plasma arc zone" is confusing the first plasma arc zone has not been recited in the preceding claim.

In claim 3, the phrase "the bottom portion" lacks antecedent basis.

Claim Rejections - 35 USC § 102 and § 103

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 4-9 and 11-15 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by LIU et al. (6,398,125). LIU's invention is directed to an apparatus for the production of nanometer-sized powders. LIU discloses in Fig. 1a, 2b and 4a; col. 8, line 33 through col. 9, line 47 and col. 15, line 60 through col. 16, line 23 that the apparatus comprises all the structures as claimed.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over LIU '125. LIU as applied above further discloses in Fig. 1b and col. 48-58 the use of a cyclone or vortex powder classifier and in col. 12, lines 1-35 the use of cyclone/filter device. The difference between the reference and the instant claim is whether the recited cyclonic mixer is similar to that of LIU. Since LIU discloses the transfer of the powders to a cyclone separator or other known solid-gas separators and the use of a cyclone to cool the power products, LIU's cyclone/filter device appears to be the same in absent of evidence to the contrary.

Further, the selection of any of known equivalent powder collector and solid gas separator would have been within the level of ordinary skill in the art.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over LIU 125 in view of LEMELSON (5,628,881). The difference between the reference as applied above and the instant claim is the provision of a second plasma zone to be understood from reading the specification that the second plasma zone is created. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over LIU 125 in view of LEMELSON (5,628,881). The difference between the reference as applied above and the instant claim is the provision of a second plasma zone to be understood from reading the specification that the second plasma zone is created by another plasma arc device. LEMELSON shows in a high temperature apparatus the provision of a plurality of plasma in the chamber (see Fig. 10). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the reference's teachings as shown by LEMELSON because this would result in more effecting the reaction.

10. Claims 1, 4 and 6-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over PARKER et al. (5,514,349) in view of ARAYA et al. (4,610,718), both references cited by Applicant. PARKER's invention, is directed to a method of making nanostructured materials by an arc plasma formed between a cathode and an anode. PARKER discloses in Figs. 1 and 2 and in the abstract that the method comprises all the steps as claimed except for the recited step (B). ARAYA shows in a method for manufacturing ultra-fine materials by an arc plasma formed between a cathode and an anode wherein both the cathode and anode are in a wire shape in addition to the similar configuration of PARKER (Figs. 6 and 7). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified PARKER's teachings because the selection of any of known configurations of electrodes would be within the level of ordinary skill in the art.

As to further difference in claim 4 to the provision of two materials, since PARKER discloses that the process can be used to the manufacture a variety of nanostructured material (col. 3, lines 52-53) and ARAYA discloses that the method can be used to the manufacture of other metals and alloys (col. 5, lines 10-14), the selection of starting material would be within the level of ordinary skill in the art.

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11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over PARKER '349 as modified by ARAYA '718 as applied to claims 1, 4 and 6-14 above, and further in view of ZURECKI et al. (5,294,242). PARKER as applied above discloses in col. 3, lines 5-13 the preferred continuous feeding of the starting material and the continuous production of nanostructured materials. The difference between the references and the instant claim is the provision of the step of operating wire feeding and control means. ZURECKI shows in a method for making metal powder by arc plasma the above limitation (see Fig. 1). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings as shown by ZURECKI because the provision of mechanical or automatic means to replace manual activity was held to be obvious, *In re Venner* et al. 120 USPQ 192.

12. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over PARKER '349 as modified by ARAYA '718 as applied to claims 1, 4 and 6-14 above, and further in view of LEMELSON (5,628,881). The difference between the reference as applied above and the instant claim is the provision of a second plasma zone to be understood from reading the specification that the second plasma zone

is created by another plasma arc device. LEMELSON shows in a high temperature apparatus the provision of a plurality of plasma in the chamber (see Fig. 10). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings as shown by LEMELSON because this would result in more effecting the reaction.

Allowable Subject Matter

13. Claim 3 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

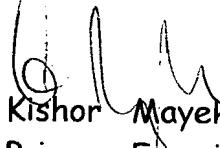
14. The following is a statement of reasons for the indication of allowable subject matter: Because the prior art references do not disclose in a system for synthesizing a nano-scaled powder material the provision of the recited reservoir in combination with other recited structures of claim 1.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kishor Mayekar
Primary Examiner
Art Unit 1753